

*TPW*Patent  
45358.00002.CIP

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Scott B. Wilson

Serial No.: 10/830,177

Filed: April 21, 2004

For: SYSTEMS AND METHODS FOR  
AUTOMATIC AND INCREMENTAL  
LEARNING OF PATIENT STATES  
FROM BIOMEDICAL SIGNALS

Group Art Unit: To Be Assigned

Examiner: To Be Assigned

Customer No.: 36183

TRANSMITTAL LETTER

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Enclosed are the following documents:

- Information Disclosure Statement;
- Form PTO/SB/08A; and
- Return Postcard.

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(37 C.F.R. §1.8a)

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*7/27/04*

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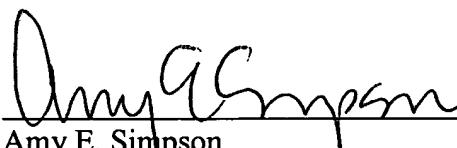
No fee is believed due with this submission; however, the Commissioner is authorized to charge any fee required by this submission to our Deposit Account No. **50-2613**.

Respectfully submitted,

PAUL, HASTINGS, JANOFSKY & WALKER LLP

Dated: 7/27/04

By:

  
Amy E. Simpson  
Reg. No. 54,688

**PAUL, HASTINGS, JANOFSKY & WALKER LLP**  
P.O. Box 919092  
San Diego, CA 92191-9092  
Phone: (858) 720-2500  
Fax: (858) 720-2555



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**FROM BIOMEDICAL SIGNALS** )

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In compliance with the Applicant's duty under 37 CFR § 1.56, the following information is brought to the attention of the Examiner.

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Signature of Person Delivering Paper

**REFERENCES**

The references are listed on the attached Form PTO/SB/08a and copies are enclosed for the convenience of the Examiner.

Copies of the references listed on the attached Form PTO/SB/08a have already been submitted in corresponding Patent Application No. 01/123,843 and therefore, copies of the same are not enclosed.

The items identified in this Information Disclosure Statement may or may not be "material" pursuant to 37 CFR § 1.56 and the submission thereof by Applicant shall not be construed as an admission that any such patent, publication or other information referred to therein is material or considered to be material (37 CFR § 1.97(h)), or even qualifies as "prior art" 35 USC § 102 with respect to this invention unless specifically designated by Applicant as such.

The filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information, as defined in 37 CFR § 1.56, exists.

**DISCLOSURE**

The attached IDS is being filed in accordance with 37 CFR §§ 1.97 and 1.98. This IDS is believed to be timely in that it is being submitted under 37 CFR § 1.97(b)(3), that is before the mailing of a first Office Action on the merits. Thus, no petition or fee is required. However, if the undersigned representative of Applicant is in error in this regard, then the Examiner is requested to consider this IDS as filed under § 1.97(c)

The attached Information Disclosure Statement is being filed in accordance with 37 CFR §§ 1.97(c) and 1.98. This IDS is being filed after an action on the merits but before a Final Action under § 1.113 or a Notice of Allowance under § 1.311. In the event that this IDS is not received before a Final Action under § 1.113 or a Notice of Allowance under § 1.311, the Applicant respectfully requests the filing of these papers to be considered a petition requesting consideration of this IDS pursuant to 37 CFR § 1.97(d).

The attached Information Disclosure Statement is being filed in accordance with 37 CFR §§ 1.97(d) and 1.98. This IDS is being filed after receipt of a final action but before receipt of a Notice of Allowance Under § 1.311.

I certify that pursuant to 37 CFR 1.97(e)(1), each item of information contained in this Information Disclosure Statement was first cited in any communication (International Search Report – copy enclosed) from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the Information Disclosure Statement.

I certify that pursuant to 37 CFR 1.97(e)(2), no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the best of my knowledge, no item of information contained in this Information Disclosure Statement was known to any individual more than three months prior to the filing of this Information Disclosure Statement.

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Enclosed is a check to cover the fee pursuant to 37 CFR § 1.17(p).

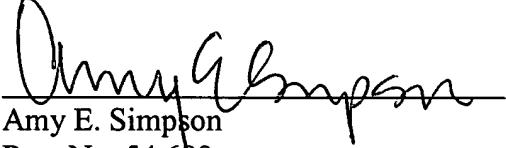
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The Examiner is hereby authorized to charge any additional fee(s) required by this paper to our Deposit Account No. **50-2613**.

Respectfully submitted,

PAUL, HASTINGS, JANOFSKY & WALKER

Dated: 1/21/04

By:   
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PTO/SB/08A (08-00)

Substitute for form 1449A/PTO

*Complete if Known,*

Application Number	10/830,177
Filing Date	April 21, 2004
First Named Inventor	Wilson
Group Art Unit	To Be Assigned
Examiner Name	To Be Assigned

Sheet

1 of 1

Attorney Docket Number 45385.00002.CIP

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code <sup>2</sup> (if known)		
AA	5,311,876			Olsen, et al.	05-1994
AB	6,442,421			Le Van Quyen, et al.	08-2002
AC	6,337,997			Rise	01-08-2002
AD	6,594,524			Esteller, et al.	07-2003
AE	6,658,287			Litt, et al.	12-2003

## FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>2</sup> (if known)				

## NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	AF	AKAY, M., "Detection and Estimation Methods for Biomedical Signals," <i>San Diego: Academic Press</i> xiv(268) 186-191 (1996).	
	AG	AKAY, M., "Time Frequency and Wavelets in Biomedical Signal Processing," <i>IEEE Press</i> xxviii(739) 398-399 (1998).	
	AH	BLANCO, S., et al., "Applying Time-Frequency Analysis to Seizure EEG Activity," <i>IEEE Eng. Med. Biol. Mag.</i> 16(1):64-71 (1997).	
	AI	BODENSTEIN, G. et al., "Computerized EEG Pattern Classification by Adaptive Segmentation and Probability-Density-Function Classification. Description of Method" <i>Comput. Biol. Med.</i> 15(5):297-312 (1985).	

Examiner Signature	Date Considered
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of

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Filing Date	April 21, 2004
First Named Inventor	Wilson
Group Art Unit	To Be Assigned
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	AJ	BULLMORE, E., Et al., "A New Technique for Fractal Analysis Applied to Human, Intracerebrally Recorded, Ictal Electroencephalographic Signals," <i>Neurosci Lett.</i> 146(2): 227-230 (1992).	
	AK	FRANASZCZUK, P.J., "Time-Frequencies Analysis Using the Matching Pursuit Algorithm Applied to Seizures Originating From the Mesial Temporal Lobe," <i>Electrocencephalogr Clin. Neurophysiol.</i> 106(6):513-521 (1998).	
	AL	GABOR, A. J., "Seizure Detection Using A Self-Organizing Neural Network: Validation and Comparison With Other Detection Strategies," <i>Electrocephalogr Clin Neurophysiol.</i> 107(1):27-32 (1998).	
	AM	GABOR, A. J., et al., "Automated Seizure Detection Using A Self-Organizing Neural Network," <i>Electroencephalogr Clin. Neurophysiol.</i> 99(3):257-266 (1996).	
	AN	GEVA, A.B., et al., "Forecasting Generalized Epileptic Seizures from the EEG Signal by Wavelet Analysis and Dynamic Unsupervised Fuzzy Clustering," <i>IEEE Trans. Biomed. Eng.</i> 40(10):1205-1216 (1998).	
	AO	GEVA, A.B., "Feature Extraction and State Identification in Biomedical Signals Using Hierarchical Fuzzy Clustering," <i>Med. Biol. Eng. Comput.</i> 36(5):608-614 (1998).	
	AP	GOTMAN, J., et al., "Automatic Recognition and Qualification of Interictal Epileptic Activity in the Human Scalp EEG," <i>Electroenphalogr Clin. Neurophysiol.</i> 41(5):513-529 (1976).	
	AQ	GOTMAN, J., et al., "Automatic Recognition of Epileptic Seizures in the EEG," <i>Electroencephalogr Clin. Neurophysiol.</i> 54:530-450 (1982).	
	AR	HILFIKER, P., et al., "Detection and Evolution of Rhythmic Components in Ictal EEG Using Short Segment Spectra and Discriminant Analysis," <i>Electroencephalogr Clin. Neurophysiol.</i> 82(4):225-265 (1992).	
	AS	HOFMANN, W.G., et al., "Unsupervised Classification of EEG From Subdural Seizure Recordings," <i>Brain Topogr.</i> 10(2):121-132 (1997).	

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	AT	JAIN, A.K., et al., "Algorithms for Clustering Data," xiv (320) 54-59 (1998).			
	AU	JING, H., et al., "Comparison of Human Ictal, Interictal and Normal Non-linear Component Analyses," <i>Clin. Neurophysiol.</i> 111(7):1282-1292 (20000).			
	AV	KLATCHKO, A., et al., "Enhancing the Detection of Seizures with a Clustering Algorithm," <i>Electroencephalogr Clin. Neurophysiol.</i> 106(1):52-63 (1998).			
	AW	KOMZAK, J., "Hierarchical Clustering Speed Up Using Position Lists and Data Position Hierarchy," <a href="http://www.kmi.open.ac.uk/papers/kmi-tr-115.pdf">http://www.kmi.open.ac.uk/papers/kmi-tr-115.pdf</a> (2001).			
	AX	LIU, A., et al., "Detection of Neonatal Seizures Through Computerized EEG Analysis," <i>Electroencephalogr Clin. Neurophysiol</i> 82(1):30-37 (1992).			
	AY	MALLAT, S.G., "A Wavelet Tour of Signal Processing," xxiv (637) 420-423 (1999).			
	AZ	OSORIO, I., et al., "Real-time Automated Detection and Quantitative Analysis of Seizures and Short-Term Prediction of Clinical Onset," <i>Epilepsia</i> 39(6):615-627 (1988).			
	BA	PARK, H.S., "Detection of Epileptiform Activities in the EEG Using Neural Network and Expert System," <i>Medinfo</i> . 9(2):1255-1259 (1998).			
	BB	PENCZEK, P., et al., "Computer-aided Analysis of the Epileptic EEG," <i>Acta. Physiol. Pol.</i> 37(6):262-274 (1986).			
	BC	QU, H., et al., "A Patient-Specific Algorithm for the Detection of Seizure Onset in Long-Term EEG Monitoring: Possible Use as a Warning Device," <i>IEEE Trans Biomed. Eng.</i> 44(2):155-122 (1997).			

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	BD	WILSON, S.B., et al., "Spike Detection IV: Reduction of Model Complexity Via Small Neural Networks Constrained by Domain Expertise," Abstract:1-18 (2002).	
	BE	WICKERHAUSER, M.V., "Adapted Wavelet Analysis from Theory to Software," xii (486) 272-275, 416-418 (1994).	
	BF	WU, L., et al., "Segmentation and Classification of EEG During Epileptic Seizures," <i>Electroencephalogr Clin. Neurophysiol</i> 106(4):344-356 (1998).	

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